Attachment 7

Operations Group Chairman's
Factual Report

DCA05MA003

Bombardier All Operator Message

BOMBARDIER

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Bombardier CRJ CL-600-2B19

All Operator Message No. 860

ATTN: Director/Manager of: Maintenance
Engineering
Quality Control
Flight Operations

DATE: 14 Dec 04

ATA: 0000 MODEL: CL-600-2B19

SUBJECT: High Altitude Operations

The following message is sent to all Bombardier CRJ Operators and Bombardier Aerospace Field Service Representatives.

This message contains information requiring attention and/or action. Please ensure timely and appropriate distribution within maintenance and flight operations departments.

DISCUSSION:

This All Operators Message is issued, following the recent loss of a CRJ200 aircraft operating at 41,000 feet (FL410), to heighten flight crew awareness and reiterate basic principles regarding high altitude operations.

The CRJ series aircraft, like many other transport category jet aircraft, are certified for and capable of operating at altitudes up to FL410. In operating any aircraft at high altitude, particularly at or near the operational service ceiling, a number of issues must be considered and appropriate procedures must be followed.

Proper flight planning is a must. Strict adherence to the guidance and procedures contained within the Aircraft Flight Manual (AFM) and Flight Crew Operating Manual (FCOM) is mandatory.

Particular attention must be paid to the following areas:

- Careful consideration must be given to the aircraft weight and balance and ambient conditions to determine whether flight at a particular altitude is possible before attempting it.
- Climb profiles as detailed in the AFM must be strictly adhered to. Climbing below the recommend profile speed may place the airplane behind the energy

curve when it arrives at the desired altitude and it may not be capable of remaining at that altitude. This may be evident by an aircraft nose-high attitude and its failure to accelerate.

- Consideration must be given to setting the appropriate engine thrust for the climb and flight at altitude. The Flight Management System (FMS) must not be used for engine thrust calculations at altitudes greater than FL 360 as the data becomes inaccurate. For all flights above FL 360, the appropriate performance charts contained in the AFM, must be used.

- The autopilot should be engaged, and performance closely monitored during the upper portion of the climb and immediately following the level off. When the selected altitude is reached, under normal conditions, the aircraft will accelerate to the desired cruise speed.

- Situational awareness must be maintained at all times when the aircraft reaches the desired cruising altitude. If the nose attitude (angle of attack) is excessively high, the performance may be such that the aircraft is not capable of maintaining the altitude and the airspeed may begin to decay. Under these circumstances, a descent must be initiated immediately.

- Do not wait for the onset of continuous ignition or stick shaker before attempting a descent from an altitude where continued operation is not possible. Descend immediately.

- In the event that a stick-shaker / approach to stall occurs (notwithstanding all aforementioned guidance to avoid this), the crew should expect that a deliberate loss of altitude will likely be required in order to restore the aircraft to a normal energy state, and to prevent an aerodynamic stall and possible departure from controlled flight.

The guidance above is intended to assist flight crew in successfully operating the CRJ series aircraft at or near its operational service ceiling. Operators should consider this important guidance for their flight crew during scheduled training sessions.

Please direct responses and inquiries to your Bombardier Aerospace Regional Aircraft Field Service Representative or the Technical Help Desk in Montreal at telephone number (514) 855-8500 or facsimile (514) 855-8501 or thd.crj@aero.bombardier.com

Jim Donnelly, Manager, Air Safety Investigation, Mike Lohmann's, CRJ Chief Training Pilot, Bombardier Aerospace Regional Aircraft.